

06 Nov 2009

**Project: MP59.4 Bridge Installation and MP
58.6 to MP 59.4 Track Embankment
Shoulder Prot**

Pg 1 of 6

Total Benefits: **\$1,252,407**

Total Costs: **\$1,225,527**

BCR: **1.02**

Project Number:

Disaster#:

Program: HMGP

Agency: **Alaska Railroad
Corporation**

State: **Alaska**

Point of Contact: Robert Hanson

Analyst: Robert Hanson

Project Summary:

Project Number:

Disaster #:

Program: HMGP

Agency: Alaska Railroad
Corporation

Analyst: Robert Hanson

Point of Contact: Robert Hanson

Phone Number: 907 265-2584

Address: 327 Ship Creek Ave, Anchorage, Alaska, 99501

Email: hansonb@akrr.com

Comments:

Structure Summary For:

ARRC MP 58.6 to MP59.4 Bridge and MP58.6 to MP59.1 Embankment Shoulder Protection, 327 Ship Creek Ave, Anchorage, Alaska, , Anchorage

Structure Type: Other

Historic Building: No

Contact: Robert Hanson

Benefits: \$1,252,407

Costs: \$1,225,527

BCR: 1.02

Mitigation	Hazard	BCR	Benefits	Costs
Drainage Improvement	Damage-Frequency Assessment	1.02	\$1,252,407	\$1,225,527

06 Nov 2009

Project: **MP59.4 Bridge Installation and MP
58.6 to MP 59.4 Track Embankment
Shoulder Prot**

Pg 2 of 6

Total Benefits: **\$1,252,407**

Total Costs: **\$1,225,527**

BCR: **1.02**

Project Number:

Disaster #:

Program: **HMGP**

Agency: **Alaska Railroad
Corporation**

State: **Alaska**

Point of Contact: **Robert Hanson**

Analyst: **Robert Hanson**

Structure and Mitigation Details For:

ARRC MP 58.6 to MP59.4 Bridge and MP58.6 to MP59.1 Embankment Shoulder Protection, 327 Ship Creek Ave, Anchorage, Alaska, , Anchorage

Benefits: \$1,252,407

Costs: \$1,225,527

BCR: 1.02

Hazard: **Damage-Frequency Assessment - Flood**

Mitigation Option: **Drainage Improvement**

Latitude:

Longitude:

Project Useful Life: 30

Mitigation Information

Basis of Damages: **Historical Damages**

Number of Estimated Damage Events: 4

Number of Events with Know Recurrence
Intervals: 0

Roads And Bridges

Estimated Number of One-Way
Traffic Trips Per Day: 0

Additional Time per One-Way Trip: 00:00

Number of Additional Miles: 0.0

Federal Rate: 0.550

Economic Loss Per Day of
Loss of Function: \$0

Facility Description:

Railroad bridge (58', double span, concrete ballast deck)
and provide embankment protection for two

Historic Damages Before and After Mitigation

Analysis Year: 2009

Analysis Duration: 103

Utilities (\$/day):

Year Built: 1907

User Input Analysis Duration:

Buildings (\$/day):

Roads/Bridges (\$/day): \$0.00

06 Nov 2009

**Project: MP59.4 Bridge Installation and MP
58.6 to MP 59.4 Track Embankment
Shoulder Prot**

Pg 3 of 6

Total Benefits: **\$1,252,407**

Total Costs: **\$1,225,527**

BCR: **1.02**

Project Number:

Disaster#:

Program: HMGP

Agency: **Alaska Railroad
Corporation**

State: **Alaska**

Point of Contact: Robert Hanson

Analyst: Robert Hanson

Damages Before Mitigation

Damage Year: 2005

RI:

Are Damages In Current Dollars? No

Buildings (Days):

Utilities (Days):

Roads (Days):

Repair Damage (\$)	\$2,468
Total	\$2,468
Total Inflated	\$2,859

Damages After Mitigation

RI: 1.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads(Days):

Special Bridge Insp (\$)	\$500
Culvert Unplug (\$)	\$7,700
Total	\$8,200

Damage Year: 2006

RI:

Are Damages In Current Dollars? No

Buildings (Days):

Utilities (Days):

Roads (Days):

Repair Damage (\$)	\$35,159
Total	\$35,159
Total Inflated	\$38,444

RI: 20.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads(Days):

Repair Damage (\$)	\$40,000
Total	\$40,000

Damage Year: 2007

RI:

Are Damages In Current Dollars? No

Buildings (Days):

Utilities (Days):

Roads (Days):

Repair Damage (\$)	\$117,710
Total	\$117,710
Total Inflated	\$125,496

RI:

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads(Days):

Total	\$0

Damage Year: 2009

RI:

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads (Days):

Bus charters (\$)	\$18,125
-------------------	----------

06 Nov 2009

**Project: MP59.4 Bridge Installation and MP
58.6 to MP 59.4 Track Embankment
Shoulder Prot**

Pg 4 of 6

Total Benefits: **\$1,252,407**

Total Costs: **\$1,225,527**

BCR: **1.02**

Project Number:

Disaster#:

Program: HMGP

Agency: **Alaska Railroad
Corporation**

State: **Alaska**

Point of Contact: Robert Hanson

Analyst: Robert Hanson

Passenger Refund (\$)	\$16,705
Repair Damage (\$)	\$120,496
Total	\$155,326
Total Inflated	\$155,326

Damage Year:

RI: 1.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads (Days):

Culvert Unplug (\$)	\$7,700
Total	\$7,700
Total Inflated	\$7,700

Damage Year:

RI: 1.00

Are Damages In Current Dollars? Yes

Buildings (Days):

Utilities (Days):

Roads (Days):

Special Bridge Insp (\$)	\$1,000
Total	\$1,000
Total Inflated	\$1,000

06 Nov 2009

**Project: MP59.4 Bridge Installation and MP
58.6 to MP 59.4 Track Embankment
Shoulder Prot**

Pg 5 of 6

Total Benefits: **\$1,252,407**

Total Costs: **\$1,225,527**

BCR: **1.02**

Project Number:

Disaster#:

Program: HMGP

Agency: **Alaska Railroad
Corporation**

State: **Alaska**

Point of Contact: Robert Hanson

Analyst: Robert Hanson

Summary Of Benefits

Expected Annual Damages Before
Mitigation

Expected Annual Damages After
Mitigation

Expected Avoided Damages After
Mitigation (Benefits)

Annual: \$120,132
Present Value: \$1,490,723

Annual: \$19,205
Present Value: \$238,316

Annual: \$100,927
Present Value: \$1,252,407

Mitigation Benefits: \$1,252,407

Mitigation Costs: \$1,225,527

Benefits Minus Costs: \$26,880

Benefit-Cost Ratio: 1.02

Cost Estimate

Project Useful Life (years): 30

Construction Type:

Mitigation Project Cost: \$1,188,300

Detailed Scope of Work: Yes

Annual Project Maintenance Cost: \$3,000

Detailed Estimate for Entire Project: Yes

Final Mitigation Project Cost: \$1,225,527

Years of Maintenance: 30

Cost Basis Year:

Present Worth of Annual Maintenance Costs: \$37,227

Construction Start Year:

Estimate Reflects Current Prices: Yes

Construction End Year:

Project Escalation:

06 Nov 2009

**Project: MP59.4 Bridge Installation and MP
58.6 to MP 59.4 Track Embankment
Shoulder Prot**

Pg 6 of 6

Total Benefits: **\$1,252,407**Total Costs: **\$1,225,527**BCR: **1.02**

Project Number:

Disaster#:

Program: HMGP

Agency: **Alaska Railroad
Corporation**State: **Alaska**

Point of Contact: Robert Hanson

Analyst: Robert Hanson

Justification/Attachments

Field	Description	Attachments
Analysis Year	This portion of the ARRC embankment was built in 1907 before federal Alaska Road Commission purchased the property in 1914.	
Estimated Number of One-Way Traffic Trips Per Day	This portion of the BCA model does not apply. There is no vehicular traffic in the portion of the track that is interrupted.	
Facility Description	Impacted roadway is a railway track and facilities - no cars or trucks use the corridor.	
Historic damages before mitigation	Events cost are detailed in attached documents. Estimated cost of culvert clean-out from filling with gravels. Area gets inspected at each intense rain event, detailed inspection occurs during heavier rains, usually in September/October.	Skookum Ck - MP 59.6 - General Scenario of Damage..pdf; FEMA MP59.6 Gravel and Culvert Cleanout Estimate 01.pdf; 2009 Passenger Refunds.pdf; 2009 Passenger Bus Work-around Costs.pdf; MP59.6 Area Response to Damage - July 2009.pdf; MP59-60 Bridge and Track Improvements - 2007.pdf; MP59.6 Response Riprap - July 2006.pdf; MP59.5 Response Riprap - May 2005.pdf
Project useful life	Useful Life is the ARRC standard useful life for Bridge Improvements, see attached table. Details in attached MP 59.0 to MP59.4 Bridge and Culvert Estimate Summary 04	FEMA MP58.6 - MP59.4 Estimate Summary 05.pdf; ARRC Useful Life Table.pdf
Unknown Frequency - Damages after Mitigation	Additional bridge will require extra inspection for annual FRA regulatory inspection. Anticipate 20 yr RI on severe flood damage to embankment. Anticipate periodic culvert maintenance due to extra large events.	FEMA MP59.6 Gravel and Culvert Cleanout Estimate 01.pdf
Year Built	1907 was the year that this section of ARRC grade was built.	